Final Review Name:

* 1. Find the equation of the line that passes through (2,4) and (4, 10).
  2. Find a line that is parallel to the line in #a that passes through (1, 5).
  3. Find a line that is perpendicular to #a that passes through (0, -3)

1. Let f(x)=3x4. Write a new function *g* (in terms of *x*) when *f* is shifted:
   1. Up 4
   2. To the right 2
   3. To the left 3
   4. Down 7
2. For f(x)=x4-2x2+1, determine:
   1. any local extrema
   2. any absolute extrema
3. Solve using any method.
4. Consider the rational function .
   1. State the equations of any vertical asymptotes, if there are any.
   2. Identify the equations of any horizontal asymptotes, if there are any.

Use the function shown below to complete the following.



* 1. Graph the function



* 1. Evaluate f at x= -2, 0, 2, and 4
  2. Determine the x values where f(x)=0

1. Use f(x)=x2-25 and g(x)= x2-10x+16 to find and simplify the following.
   1. (fg)(x)
   2. (f/g)(x)
   3. (f ○ g)(x)
2. Determine algebraically whether  *f* (*x*) = 3*x* – 2 and *g*(*x*) = (*x* + 2)/3 are inverses of each other.
3. Solve the following:
   1. 4(1.3)x-10=70
   2. 2 log 3x+5=1
4. Find the vertex of f(x) = -2x2 + 2x + 3.